

## **ABSTRACT OF THE DISCLOSURE**

A tunable filter and its manufacturing method are disclosed. Interference of two laser beams defines the grating pattern required by the filter to make a micro grating with a period as small as several hundred nanometers on a polymer film. As the refractive index  
5 of the polymer film changes with the temperature, one can control the temperature to adjust the wavelengths of optical signals that the micro grating can reflect.